# Attachment C
# Ecological Risk Narrative
# July 26, 2010

**Colored underlined text reflects proposed new language, language changes, or concepts.**

The basic SMS framework for protection of the benthos will not change. Additional language is added to Part V of the SMS to accommodate protection of human health and upper trophic level ecological receptors.

**WAC 173-204-570 Sediment Cleanup Standards.**

(1) Applicability and purpose.
(2) Cleanup objective.
(3) Minimum cleanup level.
(4) Sediment cleanup standard.
(5) Protection of human health and applicable requirements.
(6) Protection of upper trophic level ecological receptors.

**WAC 173-204-570(6) Protection of upper trophic-level ecological receptors from sediment contaminants. New text added.**

Cleanup levels must prevent exposure to contaminant concentrations that may have significant adverse effects on species that currently utilize, may potentially inhabit, or have historically inhabited cleanup sites. Significant adverse effects include impairment of reproduction, growth or survival. Cleanup levels will be protective of species based on a number of factors including, but not limited to, the species life history, feeding and reproductive strategy, population numbers, range, and the potential for recruitment/immigration of individuals into the area. For species protected under the Endangered Species Act or other applicable laws that extend protection to individuals of a species, a significant adverse effect also includes impacts that significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.

(1) The cleanup levels must be protective of ecological receptors that may be exposed to contaminants directly as well as indirectly through bioaccumulation and biomagnification up the food chain. The determination of a bioaccumulative contaminant's potential to have adverse affects on ecological resources must be based on the contaminant's potential to be toxic, persistent, or bioaccumulative as established in WAC 173-333-320. A bioaccumulative contaminant that is present at the site may be deemed by Ecology to be reasonably likely to produce adverse effects on ecological receptors if either of the following conditions exist:
    (a) the contaminant is listed as a persistent bioaccumulative toxin on Ecology's persistent, bioaccumulative toxin (PBT) list (WAC 173-33-310) or

(b) the contaminant has chemical properties which indicate a propensity to bioaccumulate (for example, a log $K_{ow}$ > 3.5). Chemicals that are present at a site and meet either of the conditions specified above will be considered Bioaccumulative Contaminants of Concern (BCoCs).

(2) An ecological risk assessment using methods approved by Ecology may be required where BCoCs are present. An Ecological risk assessment may also be required when site contaminants are known or suspected of having significant adverse effects on upper trophic level receptors through direct contact exposure scenarios. Ecological risk assessments will not be required at sites where either a human health risk assessment has determined that the cleanup level must be set at background to be practicable or where a potentially liable party has agreed to use background as a cleanup level.

(3) For determining ecological risk from BCOCs and non-bioaccumulative contaminants, the department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter (WAC 173-204-100) and as defined (WAC 173-204-200).